

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
2 June 2005 (02.06.2005)

PCT

(10) International Publication Number
WO 2005/049491 A1

(51) International Patent Classification⁷: **C01B 33/02**,
33/027

Gelnhausen (DE). **PETRAT, Frank-Martin** [DE/DE];
Plöniesstrasse 4, 48153 Münster (DE).

(21) International Application Number:
PCT/EP2004/012889

(74) Common Representative: **DEGUSSA AG**; Intellectual
Property Management, Patente und Marken, Standort
Hanau, Postfach 13 45, 63403 Hanau (DE).

(22) International Filing Date:
13 November 2004 (13.11.2004)

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB,
GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,
KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH,
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
103 53 996.4 19 November 2003 (19.11.2003) DE

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE,
SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **DE-
GUSSA AG** [DE/DE]; Bennigsenplatz 1, 40474 Düssel-
dorf (DE).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **PRIDÖHL, Markus**
[DE/DE]; Torsbyvägen 25, 63538 Grosskrotzenburg (DE).
ROTH, Paul [DE/DE]; Tümpweg 17, 47906 Kempen
(DE). **WIGGERS, Hartmut** [DE/DE]; Michaelstrasse
9, 48734 Reken (DE). **KRESS, Peter** [DE/DE]; Spes-
sartstrasse 26, 63791 Karlstein (DE). **ZIMMERMANN,
Guido** [DE/DE]; Castellstrasse 19a, 63454 Hanau (DE).
HEBERER, Stefan [DE/DE]; Wiesenbornstrasse 3, 63571

Published:

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: NANOSCALE, CRYSTALLINE SILICON POWDER

(57) Abstract: Aggregated, crystalline silicon powder with a BET surface of more than 50 m²/g. The powder is produced by continuously feeding at least one vaporous or gaseous silane and optionally at least one vaporous or gaseous doping substance and an inert gas into a reactor and mixing the components there, wherein the proportion of silane is between 0.1 and 90 wt.% referred to the sum total of silane, doping substance and inert gas, the mixture is caused to react by input of energy, wherein a plasma is produced by the input of energy by means of electromagnetic radiation in the microwave range at a pressure of 10 to 1100 mbar, the reaction mixture is allowed to cool and the reaction product is separated in the form of a powder from gaseous substances. The powder may be used for the production of electronic components.

WO 2005/049491 A1